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AN ANALYSIS OF PRICES AT UTAH

LIVESTOCK AUCTIONS

by

McNeil Glenn

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Economics

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1964

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McNeil Glenn

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INTRODUCTION

From the time of Don Hernando Cortez, livestock has been one of America's greatest industries. The cattle in Cortez's time were Moorish stock which had been bred for centuries in the Andalusian Plains of Spain.

Following this beginning in about 1521, cattle were bred and brought from South America to Mexico. By 1583 the first herds were grazing in what is now Texas.

This was the beginning of the livestock industry and with it came the endless search for fertile valleys, waterholes, feed in the winter, long trail drives, cattle rustlers, railroads, range wars, and a great American institution, The Cowboy.

By the early 1800's, the Texas longhorns, descendants of the early Spanish cattle, were common throughout the West. Adapted to prairie life they were probably the only breed of cattle that could have survived early conditions where they had to shift for themselves.

In 1825, eighteen shorthorn cattle were brought from England to Ohio (1)¹. This even marked two important improvements in the cattle industry; the improvement in qualities of livestock and also the beginning of the cattle feeding industry.

In about 1825 the first Herefords were brought from Herefordshire,

¹Numbers in parenthesis refer to references listed at the end of the thesis in Literature Cited.

England. Gradually the Herefords spread throughout Ohio, Missouri, Kentucky, and Texas to become crossed with the Longhorn cattle, beginning the great hereford cattle industry.

As the industry expanded and new grazing lands were opened, ranchers were faced with the problem of getting their beef to market. At first cattle were taken on long trail drives; this was replaced to a great extent with railroads and trucks, but there was a felt need for a local market where cattle could be bought and sold without long drives or long hauls by rail or truck. This situation led to the establishment of local livestock auctions where the transactions could take place at the convenience of the buyer and seller.

The auction method of selling is no novelty in this part of the country (Western States). It is believed that the oldest livestock auction in the West was established at Miles, City, Montana in 1900. This particular market was for horses and lasted only a few years (1).

It was not until 1917 that the first auction solely for marketing meat animals was established in the West. In 1916, George C. Kruetzer the farm adviser of Kern County, California, proposed to the director of the United States Agricultural Extension Service that a method of livestock sale be set up to the advantage of producers in that state. After approval was obtained, Kruetzer submitted his plan to the Farm Bureau of Kern County. In the proposal four objectives were sought: first, buyer competition; second, a simple method of assembling and marketing livestock; third, improvement of quality; and fourth, the obtaining of a premium for quality (1).

Auction sales are open to the public, goods are sold to the highest bidders unless the seller reserves the right to reject bids, and anyone is free to make purchases in compliance with the rules under which the sales are conducted. An auction sale is said to give the freest play to supply and demand, therefore, to establish a free competitive market. The amount and quality of goods should be known and competition between the buyers should measure the demand. However, if two or more people want the same article, bidding may force the price unreasonably high. On the other hand, only one bidder may obtain the article cheaply.

The auction performs primarily a selling function. The auction's most important services are to find buyers, establish price, and transfer title (3). By advertising its sales and attracting people, the auction may stimulate demand and thus bring about the free competitive market situation described above.

Country auctions for the sale of livestock have grown rapidly in recent years. Of these the livestock auctions are the most numerous. Livestock auctions are found in most states and serve three main purposes: First, assembly and sale of slaughter stock (stock ready for the butcher); second, sale among farmers and ranchers of feeders and breeding stock; and third, it provides an outlet for cull cows (cows that have gone beyond their usefulness as milk or breeding cows).

Livestock auctions may seem to be small and unimportant, but their growth in Utah and elsewhere indicates they are serving a real

purpose. Some farmer may have a few more head of cattle than he can feed, another may have more feed than he can use. The local auction brings both together near their homes, thus avoiding transportation to and from a distant market.

Buyers at livestock auctions usually include: First, local or regional packers, local butchers, and locker plant operators buying for immediate slaughter; second, large packers with a national distribution system purchasing either for immediate slaughter or for shipment to one of their large plants; third, order buyers, who are usually buying on order for outside parties, such as packers and feeders at distant points; fourth, the stockmen, farmers, or feeders buying stocker or feeder livestock; fifth, dealers (registered operators) who buy on their own account for resale (1).

The desire of ranchers to sell near home and keep control of the livestock has no doubt been an important consideration in the expansion of the numerous auctions in Utah. The auctions have proved an effective means of making the livestock producer feel that he is an actual part of the market and still permit him to keep some measure of control over his livestock, even through the actual process of price making (1).

OBJECTIVES OF THE STUDY

1. Determine inter-auction price differentials between Smithfield, Ogden (second year only), Utah Valley, Delta and Richfield for feeder cattle, slaughter cattle, and cull cows.
2. Determine the price differential among grades of cattle at each auction.
3. Compare differentials to determine if there is an imperfection in price making among auctions. If there is, it would be possible to ship livestock from one auction to another and make a profit after deducting transportation, shrinkage, and other market costs.
4. Determine the amount of price imperfection and what significance it has for the buyers and sellers who patronize the auctions.

REVIEW OF LITERATURE

Literature available on Utah livestock auctions and auctions in general is quite limited. However, information gleaned from previous Master's Theses, United States Department of Agriculture Bulletins, Agricultural Experiment Station Bulletins, and Marketing texts, have contributed useful material for this study.

A thesis was written by Eugene S. Sanford (6) at Utah State University in 1952 entitled "The Costs of Marketing Cattle in Utah." Information from this thesis was used to help determine transportation costs, terminal marketing charges, commission fees, and costs of cattle shrinkage during shipment to market.

A more detailed study on cattle shrinkage was published by Tippetts, Stevens, Brotherton, and Abel (7). This was a cooperative study by the Agricultural Experiment Stations of the eleven Western States and the United States Department of Agriculture. Information from this publication in conjunction with Sanford's material helped in determining a blanket shrinkage rate used to determine market costs.

In 1962, Jerald R. Barnard, (2) of Utah State University, wrote a Master's Thesis entitled "A Price Analysis of the Ogden and Los Angeles Livestock Markets for Slaughter and Feeder Cattle, 1956-60." One of the purposes of this study was to determine whether there was a price differential between the Ogden and Los Angeles markets above the additional costs of moving Utah cattle to the Los Angeles market.

Also, to determine intra-market price differentials between grades of slaughter steers and heifers, price differentials of slaughter steers and heifers of the same grade, and make a comparison of these differentials between the Ogden and Los Angeles markets. Since the purpose of the present study is similar, but limited to the auctions of Utah, helpful information was derived concerning format, procedures, type of analysis, and presentation of data.

In 1959 N. K. Roberts and L. H. Grover (5) of Utah State University, published a bulletin entitled "Transporting Utah Cattle by Truck." The purpose of this study was to discover truck operating costs and rates in Utah, to compare the effect of certain factors upon costs and rates, and to determine least cost trucking alternatives for selected ranching situations. The distances between Utah livestock auctions are not great enough to warrant shipping by rail nor are railroads available to all auctions, so the writer used the material from this bulletin to figure a blanket transportation rate for inter-auction movement of cattle.

Interesting and helpful information was gained from a publication by Harold Abel and Dee A. Broadbent (1) entitled "Trade in Western Livestock at Auctions." This was a study to trace the development of livestock marketing in the West, to ascertain the economic conditions responsible for shifts in total volume of production and marketings of the several types of meat animals sold, and the relative importance of the various marketing agencies used by farmers and ranchers over a long period of time.

More information on the history and development of auctions in general and livestock auctions in particular was found in a marketing text by Paul S. Converse and Harvey W. Huegy (3) entitled "The Elements of Marketing." Material from this book was used in the "Introduction" to establish the importance of auctions as local markets where buyers and sellers could meet and transact their business without shipping the livestock great distances.

SOURCES OF DATA

The data for this study were obtained from both primary and secondary sources. The principal primary source was weekly visits to four of the thirteen auctions of the state from July to October 1962, and weekly visits to five of the thirteen auctions from September to December 1963. As the cattle entered the ring the enumerator would estimate the weight and grade before the animal was sold and record the price as the sale was made, (see Appendix for the form used).

The auctions selected for the first study (1962) were Richfield, Delta, Utah Valley, and Smithfield. For the second year Ogden was added to give a better picture of the relationship of prices among auctions.

The secondary source material included bulletins on shrinkage, transportation, and various other factors affecting marketing costs. Personal visits were made to each of the auctions to obtain selling commissions and charges for feed.

MARKETING COSTS

In order for cattle producers in Utah to effectively evaluate the various marketing opportunities, they must have a knowledge of marketing costs associated with the different auctions. Two situations are possible: First, each auction's marketing costs must be considered separately; or second, if the marketing costs among auctions are more or less standard, it would be possible to compute standard marketing costs which would apply to each auction with very little variation. In this case a standard marketing cost has been computed from information obtained by personal visits to each auction under consideration. In cases where costs per hundred pounds must be established, a weight of 500 pounds was used for feeder cattle, 1000 pounds for slaughter cattle and cull cows.

Transportation Costs

In many areas of Utah, cattlemen have access to both truck and rail transportation. For this study, however, only truck transportation is considered because of the relatively short distances among auctions. Rail transportation is used to ship stock purchased at the auctions outside of the state, but that is beyond the scope of this study.

The auctions are held on consecutive days i.e., Ogden Monday, Delta Tuesday, Richfield Wednesday, Utah Valley Thursday, and Smithfield Friday. The possible movement of stock between auctions

would be:¹

| | |
|---------------------------|-----------|
| Ogden to Delta | 218 miles |
| Delta to Richfield | 83 miles |
| Richfield to Utah Valley | 100 miles |
| Utah Valley to Smithfield | 180 miles |
| Smithfield to Ogden | 60 miles |

In order to determine a blanket transportation rate per hundred pounds, an average figure of 150 miles per haul is used. From Roberts and Grover's Bulletin (5), it is found that the cost per hundred weight for an average 150 mile haul is \$0.90.

| | |
|----------------------------------|------------------------|
| pickups and one ton trucks----- | \$0.75 per cwt. |
| one and one-half ton trucks----- | \$1.05 per cwt. |
| two and one-half ton trucks----- | \$0.90 per cwt. |
| semi-trucks----- | <u>\$0.90</u> per cwt. |
| Average | \$0.90 per cwt. |

Auction Charges

The costs incurred when marketing cattle at a particular auction are made up of charges levied for services such as handling, corral space, feed, and fees charged by the auction company for selling livestock consigned to them.

For purposes of this study, selling commission is presented on

¹It is doubtful if cattle would move from Ogden to Delta or Utah Valley to Smithfield because of the distance.

a cost-per-hundred pound basis as follows:

| | 500 lb. cattle cost <u>per cwt.</u> | 1000 lb. cattle cost <u>per cwt.</u> |
|---------------------------------|---|--|
| Selling commission ¹ | \$0.46 | \$0.30 |

Shrinkage

Due to the number of factors influencing intransit shrinkage, it is difficult to estimate the amount cattle will shrink. Factors² such as time in-transit, methods of handling, weather, feed, water, class, breed, and sex have to be taken into consideration. It is important that a reasonably accurate estimate be made of this cost even though comparatively short hauls are being considered. Whenever cattle are moved any distance they lose some weight. Most shrinkage occurs during the first six hours of transit. This is ample time for shipment between auctions connected with this study. Because of this, it is possible to set up a standard rate of shrinkage.

This study will use the shrinkage data of Tippetts, Stevens, Brotherton, and Abel (?), as the as the source of determining the amount of shrinkage connected with marketing cattle at Utah livestock auctions.

Shrinkage defined

Shrinkage is of two general types: namely, tissue shrink and excretory shrink. Tissue shrink results in a decrease in the carcass

¹Selling commission was obtained by personal visits to the auctions.

²For a complete discussion on factors affecting shrinkage, see "In-transit Shrinkage of Cattle" by Tippetts, Stevens, Brotherton, and Abel (?).

weight of the animal. Excretory shrinkage is defined as the loss in weight resulting from the elimination of excreta, which is usually referred to as the elimination of "fill". An animal that has received feed and water before it is sold is commonly referred to in the trade as having received a "fill". The amount of "fill" whether it be heavy, normal, or light, is an important factor for buyers. Cattle are said to have the "fill" eliminated when most of the intestinal and bladder contents have been excreted. Such animals are said to be "well shrunk out" (7).

These two types of shrinkage probably do not occur as two distinct phases in the shrinkage process. In the early part of shipment mostly excretory shrinkage occurs. At a certain undefined stage in the movement both excretory and tissue-shrinkage losses occur simultaneously. Then, during the latter part of the shipment, tissue shrinkage is relatively more important.

Tippets, Stevens, Brotherton, and Abel (7), indicate that cattle in transit from two to six hours shrink from 3.95 to 4.66 percent. As mentioned before, this is enough time to ship between auctions, therefore, a standard shrink of four percent is used to determine marketing costs.

For purposes of establishing shrinkage costs per hundred pounds, a price of \$25.00 and \$20.00 per hundred pounds are used for 500 pound cattle and 1000 pound cattle respectively. These are the two prices that most often appear in an analysis of the data.

| | 500 lb. cattle cost <u>per cwt.</u> | 1000 lb. cattle cost <u>per cwt.</u> |
|-----------------------------------|---|--|
| Transportation | \$0.90 | \$0.90 |
| Selling commission | \$0.46 | \$0.30 |
| Shrinkage (4 percent per cwt.) | <u>\$1.00</u> | <u>\$0.80</u> |
| Total | \$2.36 | \$2.00 |

In cases where cattle reach the auction the night before, and incur a feed charge, the marketing costs will differ slightly from the above figures. There will be a charge for feed but the shrinkage factor will not be as great. From Tippetts, Stevens, Brotherton, and Abel (7) it was calculated that with a shrink of four percent, a 13-18 hour fillback or feeding period would reduce the shrink 1.5 percent thus incurring only a 2.5 percent shrink. However, for purposes of this study it is assumed that the cattle are sold the same day they arrive at the auction therefore not incurring a feed charge. The marketing costs in this situation are shown below in case readers of this material wish to make a comparison of costs after fillback.

| | 500 lb. cattle cost <u>per cwt.</u> | 1000 lb. cattle cost <u>per cwt.</u> |
|--------------------|---|--|
| Transportation | \$0.90 | \$0.90 |
| Selling commission | \$0.46 | \$0.30 |
| Feed ¹ | \$0.12 | \$0.06 |

¹Feed charge is calculated on a basis of \$0.60 per day per head of stock. This is the feed charge determined by personal visits to the auctions.

| | | |
|-------------------------------------|---------------|---------------|
| Shrinkage (2.5 percent per cwt.) | <u>\$0.63</u> | <u>\$0.50</u> |
| Total | \$2.11 | \$1.76 |

From the above information, it can be said that there must be a differential of at least \$2.36 for 500 pound cattle and \$2.00 for 1000 pound cattle to ship from one auction to another. If fillback is considered, \$2.11 for 500 pound cattle, and \$1.76 for 1000 pound cattle.

In addition to the above marketing costs, cattle buyers who purchase stock at one auction with the intention of selling at another (generally the next day) incur a "risk factor". Anytime livestock is transported by truck, there is always the possibility of an accident. Although it is not possible to measure the "risk factor", it must be considered simultaneously with the marketing costs as a further deterrent to the inter-auction movement of livestock.

It must be remembered that at the above differential the seller would just break even. The differential among auctions will have to be some figure above the preceding marketing costs to induce cattle buyers or speculators to consider alternate auctions for profit opportunities.

GRADE

In general, the grade of an animal is determined by a careful appraisal and evaluation of three factors - conformation, quality, and finish.

Conformation is the build, shape, and outline or contour of the animal and its different primal cuts.

Quality is a characteristic of the muscle or lean meat of the animal and of the intermuscular and intramuscular fat content. It refers to the texture of the meat or freedom from coarseness.

Finish refers to the fatness of an animal. It involves the quantity, quality and distribution of fat. Like conformation, finish is dependent somewhat on inherited tendencies or breeding. However, it largely depends upon three factors: First, the kind, quantity, and quality of feed eaten; second, age and sex condition of the animal; and third, on methods of handling.

Market grades for meat animals are as follows: Feeders; fancy, choice, good, medium, common and inferior. Slaughter cattle; prime, choice, good, standard, commercial, utility, cutter and canner. Cull cows; choice, good, standard, commercial, utility, cutter and canner (4).

Grades used in this study are discussed in the subsequent analysis.

PRICE DIFFERENTIAL JULY-OCTOBER 1962

The data for this study were gathered by an enumerator who visited four of the thirteen auctions of the state each week for fifteen weeks. As the cattle entered the ring the enumerator would estimate the weight and grade before the animal sold and record the price as the sale was made. The auctions selected were Richfield, Delta, Utah Valley, and Smithfield.

Average Price Differential Among Auctions

The cattle were classified into three groups - feeders, slaughter cattle, and cull cows with three grades used with each group.¹ The grades of feeder cattle where enough sales were made to analyze were choice, good, and medium. Prices are quoted on a dollars per hundred pound basis.

Using the Richfield market as a base, cattle at the Smithfield auction were \$1.10 higher on choice feeders through the fifteen week period than Richfield. Cattle at Utah Valley and Delta were \$.97 and \$.52 higher respectively (table 1). Delta was the highest market for good feeders averaging \$.43 higher than Richfield, with Utah Valley \$.25 higher and Smithfield \$.20 (table 2). For medium feeders, Utah Valley averaged \$.77 higher than the base auction with Smithfield \$.26 and Delta \$.02 higher than the base auction

¹More than three grades would have been used if any such animals had been present.

Table 1. Difference in price of choice feeder cattle with Richfield as base in dollars per hundred pounds. Utah livestock auctions^a, 1962

| Week beginning | | Smithfield | Utah Valley | Delta |
|----------------|----|------------|-------------|-------|
| July | 15 | 5.01 | 1.04 | .91 |
| | 22 | -4.04 | - .68 | xx |
| | 29 | 1.61 | 1.74 | .53 |
| August | 5 | 1.88 | 0.00 | -.28 |
| | 12 | xx | xx | xx |
| | 19 | .86 | 1.14 | .46 |
| | 26 | .94 | 1.47 | .94 |
| September | 2 | .39 | .98 | -.54 |
| | 9 | 2.05 | 3.44 | .23 |
| | 16 | 3.06 | 1.79 | 2.19 |
| | 23 | 1.90 | 2.30 | 1.05 |
| | 30 | .92 | -1.10 | -1.39 |
| October | 7 | 1.56 | 2.43 | 1.19 |
| | 14 | -1.68 | - .43 | 2.62 |
| | 21 | 1.01 | - .63 | -1.14 |
| Total | | 15.47 | 13.49 | 6.77 |
| Average | | 1.10 | .96 | .52 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, and Delta.

Table 2. Difference in price of good feeder cattle with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1962

| Week beginning | | Smithfield | Utah Valley | Delta |
|----------------|----|------------|-------------|-------|
| July | 15 | -1.59 | 1.79 | - .08 |
| | 22 | - .62 | .15 | xx |
| | 29 | 2.51 | 2.42 | 3.15 |
| August | 5 | 2.28 | - .28 | 4.92 |
| | 12 | xx | xx | xx |
| | 19 | .14 | .06 | .81 |
| | 26 | - .07 | .31 | - .51 |
| September | 2 | - .73 | -1.02 | -2.32 |
| | 9 | 1.07 | .76 | 1.09 |
| | 16 | - .45 | - .29 | .06 |
| | 23 | .47 | .26 | - .07 |
| | 30 | .68 | - .15 | - .10 |
| October | 7 | - .39 | .54 | .26 |
| | 14 | - .05 | - .38 | - .33 |
| | 21 | - .33 | - .60 | -1.18 |
| Total | | 2.92 | 3.57 | 5.70 |
| Average | | .20 | .25 | .43 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, and Delta.

(table 3). Richfield was the low market for all grades of feeder cattle.

The grades of slaughter cattle sold were good, standard, and utility. There were not enough choice slaughter cattle sold to analyze.

With Richfield used again as the base, cattle at the Utah Valley auction were \$.22 higher than Richfield for good slaughter cattle. Delta was \$.07 higher. There were not enough good slaughter cattle sold in Smithfield to be used in analysis (table 4).

Standard grade slaughter cattle were highest in Delta, averaging \$.54 higher than the base auction. They were \$.38 higher at Utah Valley. Smithfield was the low market for standard grade slaughter cattle averaging \$.54 under Richfield (table 5).

The Delta market was \$.52 higher than Richfield for utility slaughter cattle. Smithfield and Utah Valley followed with \$.36 and \$.30 higher than Richfield respectively (table 6).

Cull cows were graded as utility, cutter, and canner. The Smithfield auction was the highest market for utility cows averaging \$.56 higher than Richfield, the base auction cows at Utah Valley and Delta were also higher than Richfield at \$.35 and \$.30 respectively (table 7).

The Smithfield market was also highest for cutters averaging \$.12 more than Richfield. Cows of cutter grade at the Utah Valley auction were only \$.01 higher than the base auction, while the same grade at Delta were \$.24 under the Richfield market (table 8).

Table 3. Difference in price of medium feeder cattle with Richfield as base^a in dollars per hundred pounds for Utah livestock auctions, 1962

| Week beginning | | Smithfield | Utah Valley | Delta |
|----------------|----|------------|-------------|-------|
| July | 15 | - .51 | 4.17 | .18 |
| | 22 | .26 | 2.18 | xx |
| | 29 | - .08 | .58 | - .40 |
| August | 5 | - .32 | 1.34 | .75 |
| | 12 | xx | xx | xx |
| | 19 | 1.29 | 1.70 | .15 |
| | 26 | - .36 | - .65 | -.75 |
| September | 2 | .20 | -1.68 | -1.86 |
| | 9 | 1.03 | - .33 | - .22 |
| | 16 | .26 | .53 | .76 |
| | 23 | - .31 | - .47 | -1.40 |
| | 30 | - .22 | .54 | .46 |
| October | 7 | 1.69 | .29 | .74 |
| | 14 | - .61 | .21 | - .41 |
| | 21 | 1.40 | 2.30 | 2.70 |
| Total | | 3.72 | 10.71 | .34 |
| Average | | .26 | .77 | .02 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, and Delta.

Table 4. Difference in price of good slaughter cattle with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1962

| Week beginning | | Smithfield | Utah Valley | Delta |
|----------------|----|------------|-------------|-------|
| July | 15 | - .08 | .23 | .79 |
| | 22 | xx | 1.77 | xx |
| | 29 | xx | .10 | - .23 |
| August | 5 | .42 | .48 | .55 |
| | 12 | xx | xx | xx |
| | 19 | xx | .02 | .40 |
| | 26 | .78 | .45 | .38 |
| September | 2 | - .43 | - .02 | .23 |
| | 9 | .28 | .24 | .17 |
| | 16 | xx | - .54 | -1.37 |
| | 23 | - .28 | .17 | .34 |
| | 30 | - .81 | - .11 | - .27 |
| October | 7 | xx | .34 | - .18 |
| | 14 | xx | .54 | .15 |
| | 21 | .29 | - .65 | - .08 |
| Total | | .17 | 3.02 | .88 |
| Average | | .21 | .22 | .07 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, and Delta.

Table 5. Difference in price of standard slaughter cattle with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1962

| Week beginning | | Smithfield | Utah Valley | Delta |
|----------------|----|------------|-------------|-------|
| July | 15 | -1.36 | - .32 | -1.46 |
| | 22 | xx | 1.08 | xx |
| | 29 | -1.43 | -1.05 | - .53 |
| August | 5 | - .92 | .64 | 1.24 |
| | 12 | xx | xx | xx |
| | 19 | - .04 | 1.77 | 1.39 |
| | 26 | .76 | - .09 | .68 |
| September | 2 | - .99 | - .39 | - .16 |
| | 9 | - .51 | 1.02 | 1.31 |
| | 16 | -1.50 | .80 | - .38 |
| | 23 | -1.97 | .38 | .16 |
| | 30 | - .39 | .43 | 1.20 |
| October | 7 | .33 | .78 | .47 |
| | 14 | 1.73 | .43 | 1.17 |
| | 21 | -1.42 | - .20 | 1.92 |
| Total | | -7.71 | 5.28 | 7.01 |
| Average | | - .54 | .38 | .54 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, and Delta.

Table 6. Difference in price of utility slaughter cattle with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1962

| Week beginning | | Smithfield | Utah Valley | Delta |
|----------------|----|------------|-------------|-------|
| July | 15 | .68 | .38 | .04 |
| | 22 | .44 | 1.08 | xx |
| | 29 | 2.02 | - .12 | 1.08 |
| August | 5 | - .87 | .37 | - .23 |
| | 12 | xx | xx | xx |
| | 19 | 1.97 | .82 | 1.83 |
| | 26 | 1.52 | .29 | .75 |
| September | 2 | - .55 | .47 | .18 |
| | 9 | .84 | .24 | 1.59 |
| | 16 | - .43 | .01 | .35 |
| | 23 | .52 | - .46 | 1.66 |
| | 30 | .14 | .07 | .80 |
| October | 7 | - .68 | 1.16 | .30 |
| | 14 | .06 | .47 | .11 |
| | 21 | - .63 | - .54 | -1.68 |
| Total | | 5.03 | 4.24 | 6.78 |
| Average | | .36 | .30 | .52 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, and Delta.

Table 7. Difference in price of utility grade cows with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1962

| Week beginning | | Smithfield | Utah Valley | Delta |
|----------------|----|------------|-------------|-------|
| July | 15 | .32 | .66 | .01 |
| | 22 | .17 | .29 | xx |
| | 29 | 1.06 | 1.36 | .38 |
| August | 5 | .19 | .62 | - .53 |
| | 12 | xx | xx | xx |
| | 19 | 1.02 | .22 | .37 |
| | 26 | 1.93 | .62 | 1.11 |
| September | 2 | .58 | .44 | .06 |
| | 9 | .79 | xx | .84 |
| | 16 | .43 | .29 | .98 |
| | 23 | .69 | .03 | .14 |
| | 30 | .04 | .04 | - .04 |
| October | 7 | .30 | - .09 | .23 |
| | 14 | .24 | .38 | .12 |
| | 21 | .08 | - .02 | .27 |
| Total | | 7.84 | 4.84 | 3.94 |
| Average | | .56 | .35 | .30 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, and Delta.

Table 8. Difference in price of cutter grade cows with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1962

| Week beginning | | Smithfield | Utah Valley | Delta |
|----------------|----|------------|-------------|-------|
| July | 15 | -.33 | .35 | .22 |
| | 22 | -1.16 | -.97 | xx |
| | 29 | -.32 | -.04 | -.08 |
| August | 5 | .81 | 1.12 | .62 |
| | 12 | xx | xx | xx |
| | 19 | -.34 | .40 | -.32 |
| | 26 | -1.44 | -.54 | -4.74 |
| September | 2 | -.51 | .04 | -.49 |
| | 9 | -.37 | -.25 | .15 |
| | 16 | 3.59 | -.97 | .45 |
| | 23 | .50 | .51 | .27 |
| | 30 | .68 | .65 | 1.08 |
| October | 7 | .45 | .37 | .30 |
| | 14 | .38 | xx | -.04 |
| | 21 | -.23 | -.62 | -.53 |
| Total | | 1.71 | .05 | -3.11 |
| Average | | .12 | .01 | -.24 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, and Delta.

Canners sold best at Utah Valley, a full \$.20 higher than the Richfield base, while canner cows at Smithfield and Delta were \$.07 and \$.63 under the base respectively (table 9).

Table 9. Difference in price of canner grade cows with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1962

| Week beginning | | Smithfield | Utah Valley | Delta |
|----------------|----|------------|-------------|-------|
| July | 15 | -.26 | xx | -.04 |
| | 22 | -.20 | .32 | xx |
| | 29 | -1.91 | .01 | -1.17 |
| August | 5 | .42 | .82 | .33 |
| | 12 | xx | xx | xx |
| | 19 | -.93 | -1.18 | -1.88 |
| | 26 | .41 | .93 | -1.00 |
| September | 2 | .62 | .76 | -.30 |
| | 9 | .42 | .48 | -.16 |
| | 16 | 1.39 | 1.51 | .84 |
| | 23 | -.79 | -.21 | -.32 |
| | 30 | .10 | -.29 | -.24 |
| October | 7 | -.40 | .13 | -.99 |
| | 14 | -.32 | -.69 | -2.77 |
| | 21 | .50 | .18 | -.52 |
| Total | | -.95 | 2.77 | -8.22 |
| Average | | -.07 | .20 | -.63 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, and Delta.

Comparison of Prices Among Grades

at the Same Auction

A comparison of prices between grades at the same auction was made with the low grade of each group of cattle used as base.

In Smithfield with medium feeders as base, choice feeders averaged \$5.29 and good feeders \$1.99 above base. Good slaughter cattle were \$5.73 per hundred pounds above utility grade while standard slaughter cattle averaged \$2.67 higher than utility grade. Utility grade cull cows were \$3.81 and cutters \$1.77 higher than canners (table 10).

At Utah Valley, choice feeders averaged \$4.76 and good feeders \$1.80 higher than medium feeders. Good slaughter cattle were \$6.18 with standard grade \$3.50 above utility grade. Utility and cutter cows were \$3.32 and \$1.35 higher than canners respectively (table 11).

In Richfield choice feeders were \$4.55 above medium grade with good feeders averaging \$2.09 higher than the medium grade. Good and standard grades of slaughter cattle averaged \$6.24 and \$3.47 higher than the utility base. Canner cows as base were \$3.25 lower than utility grade and \$1.56 lower than cutters (table 12).

At the Delta market choice feeders were \$4.77 higher than medium feeders with good feeders averaging \$2.30 more than medium feeders. Good slaughter grade cattle were \$5.79 higher than the utility grade base with standard grade averaging \$3.47 above base. For cull cows utility grade and cutters were \$4.06 and \$1.77 higher than canners (table 13).

Table 10. Comparison of price among grades at the Smithfield auction in dollars per hundred pounds, with medium, utility, and canner grades as base for feeder, slaughter cattle, and cull cows respectively, 1962

| | | Dollars per hundred pounds above base grade | | | | | |
|-----------|----|---|-------|------------------|----------|-----------|---------|
| | | Feeders | | Slaughter cattle | | Cull cows | |
| Week | | Choice | Good | Good slaughter | Standard | Utility | Cutters |
| July | 15 | 10.32 | 2.20 | 4.81 | 1.66 | 4.18 | 1.15 |
| | 22 | 2.70 | 1.82 | xx | 3.11 | 5.08 | 1.88 |
| | 29 | 5.55 | 2.53 | xx | 1.59 | 4.87 | 2.51 |
| August | 5 | 7.41 | 4.02 | 6.85 | 2.19 | 3.39 | 1.40 |
| | 12 | 3.87 | 1.52 | xx | 4.10 | 2.87 | 1.97 |
| | 19 | 4.37 | 1.73 | xx | 1.83 | 3.79 | 1.17 |
| | 26 | 3.38 | 1.39 | 4.78 | 2.85 | 4.30 | .31 |
| September | 2 | 2.88 | 1.45 | 6.27 | 3.23 | 3.49 | .35 |
| | 9 | 3.70 | .68 | 5.66 | 1.96 | 3.66 | 1.20 |
| | 16 | 6.62 | 2.10 | xx | 2.97 | 3.40 | 5.90 |
| | 23 | 4.98 | 2.09 | 4.60 | .49 | 4.24 | 1.76 |
| | 30 | 7.10 | 3.08 | 6.26 | 3.15 | 3.47 | 1.82 |
| October | 7 | 4.77 | .75 | xx | 4.42 | 3.63 | 1.94 |
| | 14 | 4.64 | 2.54 | 6.60 | 4.42 | 3.84 | 2.05 |
| | 21 | 7.05 | 2.01 | xx | 1.93 | 2.94 | 1.09 |
| Total | | 79.34 | 29.91 | 45.83 | 39.90 | 57.15 | 26.50 |
| Average | | 5.29 | 1.99 | 5.73 | 2.67 | 3.81 | 1.77 |

Table 11. Comparison of price among grades at the Utah Valley auction in dollars per hundred pounds, with medium, utility, and canner grades as base for feeder, slaughter cattle, and cull cows respectively, 1962

| Dollars per hundred pounds above base grade | | | | | | | |
|---|----|---------|-------|------------------|--------------------|-----------|---------|
| | | Feeders | | Slaughter cattle | | Cull cows | |
| Week | | Choice | Good | Good | slaughter Standard | Utility | Cutters |
| July | 15 | 1.67 | .90 | 5.42 | 3.00 | xx | xx |
| | 22 | 4.14 | .67 | 6.26 | 3.55 | 4.68 | 1.55 |
| | 29 | 5.02 | 1.78 | 7.89 | 4.11 | 3.25 | .87 |
| August | 5 | 3.87 | -.20 | 5.67 | 2.51 | 3.42 | 1.31 |
| | 12 | 4.92 | 5.00 | 6.46 | 2.94 | 2.98 | 1.02 |
| | 19 | 4.24 | 1.24 | 5.72 | 4.79 | 3.24 | 2.16 |
| | 26 | 4.20 | 2.06 | 5.68 | 3.23 | 2.47 | .69 |
| September | 2 | 5.35 | 3.04 | 5.66 | 2.81 | 3.21 | .76 |
| | 9 | 6.45 | 1.73 | 6.22 | 4.09 | 2.81 | 1.26 |
| | 16 | 5.08 | 1.99 | 6.76 | 4.83 | 3.35 | 1.49 |
| | 23 | 5.54 | 2.04 | 6.03 | 3.82 | 3.00 | 1.19 |
| | 30 | 4.32 | 1.49 | 7.03 | 4.04 | 3.86 | 2.18 |
| October | 7 | 7.04 | 3.08 | 6.28 | 3.03 | 2.71 | 1.33 |
| | 14 | 5.07 | 1.39 | 5.99 | 2.71 | 4.35 | 2.04 |
| | 21 | 4.51 | .84 | 5.57 | 3.06 | 3.16 | 1.02 |
| Total | | 21.42 | 27.05 | 92.64 | 52.52 | 46.49 | 18.87 |
| Average | | 4.76 | 1.80 | 6.18 | 3.50 | 3.32 | 1.35 |

Table 12. Comparison of price among grades at the Richfield auction in dollars per hundred pounds, with medium, utility, and canner grades as base for feeder, slaughter cattle, and cull cows respectively, 1962

| Dollars per hundred pounds above base grade | | | | | | | |
|---|----|---------|-------|------------------|----------|-----------|---------|
| | | Feeders | | Slaughter cattle | | Cull cows | |
| Week | | Choice | Good | Good slaughter | Standard | Utility | Cutters |
| July | 15 | 4.80 | 3.28 | 5.57 | 3.70 | 3.70 | 1.22 |
| | 22 | 7.00 | 2.70 | 5.57 | 3.55 | 4.71 | 2.84 |
| | 29 | 3.86 | .06 | 7.67 | 5.04 | 1.90 | .92 |
| August | 5 | 5.21 | 1.42 | 5.56 | 2.24 | 3.62 | 1.01 |
| | 12 | xx | xx | xx | xx | xx | xx |
| | 19 | 4.80 | 2.88 | 6.52 | 3.84 | 1.84 | .58 |
| | 26 | 2.08 | 1.10 | 5.52 | 3.61 | 2.78 | 2.16 |
| September | 2 | 2.69 | 2.38 | 6.15 | 3.67 | 3.53 | 1.48 |
| | 9 | 2.68 | .64 | 6.22 | 3.31 | 3.29 | 1.99 |
| | 16 | 3.82 | 2.81 | 7.31 | 4.04 | 4.22 | 3.70 |
| | 23 | 2.77 | 1.31 | 5.40 | 2.98 | 2.76 | .47 |
| | 30 | 5.96 | 2.18 | 7.21 | 3.68 | 3.53 | 1.24 |
| October | 7 | 4.90 | 2.83 | 7.10 | 3.41 | 2.93 | 1.09 |
| | 14 | 5.71 | 1.98 | 5.92 | 2.75 | 3.28 | 1.35 |
| | 21 | 7.44 | 3.74 | 5.59 | 2.72 | 3.36 | 1.82 |
| Total | | 63.72 | 29.19 | 87.31 | 48.54 | 45.45 | 21.87 |
| Average | | 4.55 | 2.09 | 6.24 | 3.47 | 3.25 | 1.56 |

Table 13. Comparison of price among grades at the Delta auction in dollars per hundred pounds, with medium, utility, and canner grades as base for feeder, slaughter cattle, and cull cows respectively, 1962

| Dollars per hundred pounds above base grade | | | | | | | |
|---|----|---------|-------|------------------|--------------------|-----------|---------|
| | | Feeders | | Slaughter cattle | | Cull cows | |
| Week | | Choice | Good | Good | slaughter Standard | Utility | Cutters |
| July | 15 | 5.89 | 3.38 | 6.32 | 2.20 | 3.75 | 1.48 |
| | 22 | xx | xx | xx | xx | xx | xx |
| | 29 | 4.79 | 3.49 | 6.36 | 3.43 | 3.45 | 2.01 |
| August | 5 | 4.18 | 5.59 | 6.34 | 3.71 | 2.76 | 1.30 |
| | 12 | 3.68 | .31 | 5.15 | 3.29 | 3.90 | .59 |
| | 19 | 5.11 | 3.54 | 5.09 | 3.40 | 4.09 | 2.14 |
| | 26 | 3.77 | 1.34 | 5.15 | 2.54 | 4.89 | -1.58 |
| September | 2 | 4.01 | 1.92 | 6.20 | 3.33 | 3.89 | 1.29 |
| | 9 | 3.13 | 1.95 | 4.80 | 3.03 | 4.29 | 2.30 |
| | 16 | 5.25 | 2.11 | 5.59 | 3.31 | 4.36 | 3.31 |
| | 23 | 5.22 | 2.64 | 4.08 | 1.48 | 3.22 | 1.06 |
| | 30 | 4.11 | 1.62 | 6.14 | 4.08 | 3.73 | 2.56 |
| October | 7 | 5.35 | 2.35 | 6.62 | 3.58 | 4.15 | 2.38 |
| | 14 | 8.74 | 2.06 | 5.96 | 3.81 | 6.17 | 4.08 |
| | 21 | 3.80 | -.14 | 7.28 | 6.32 | 4.15 | 1.81 |
| Total | | 66.83 | 32.16 | 81.08 | 48.51 | 56.80 | 24.73 |
| Average | | 4.77 | 2.30 | 5.79 | 3.47 | 4.06 | 1.77 |

In accordance with the objectives of this study, the foregoing discussion on price differentials and comparison of prices between grades shows that a difference in price between auctions does exist. Further analysis of auction data will indicate the feasibility of considering alternate auctions for profit making opportunities in relation to the price differentials i.e., buying livestock at one auction and shipping to another in hope of making a profit after deducting marketing costs.

Comparison of Prices by Month, Between Price and Weight,
and Price and Weight to Grade

To bring the foregoing data into sharper focus, a series of tables follow which compare prices by month, between price and weight, and price and weight to grade. These tables plus the preceding discussion on price differential among auctions will indicate the extent of the price difference among auctions.

In table 14, a comparison is made of prices among auctions on a monthly basis for all groups and grades of livestock observed during the period of the study. Reading across the table from left to right for any group or grade, it is readily ascertained that a very slight difference in price exists among auctions when compared on a monthly basis.¹

A differential of \$2.13 per hundred pounds appears in September

¹Refer to page 14 for a discussion on how large the difference must be for profit making opportunities among auctions.

Table 14. Comparison of monthly prices among auctions for feeder, slaughter cattle, and cull cows in dollars per hundred pounds for Utah livestock auctions, 1962

| Group and grade | Month | Richfield | Smithfield | Utah Valley | Delta |
|-------------------|--------------|-----------|------------|-------------|-------|
| Feeders: | | | | | |
| Choice | July (2 wks) | 26.04 | 26.52 | 26.21 | 25.27 |
| | August | 24.59 | 25.67 | 25.55 | 24.91 |
| | September | 23.89 | 25.74 | 26.02 | 24.63 |
| | October | 25.90 | 26.35 | 25.97 | 26.22 |
| Good | July (2 wks) | 23.13 | 22.02 | 24.09 | 23.37 |
| | August | 21.94 | 23.00 | 23.07 | 23.42 |
| | September | 22.69 | 22.78 | 22.61 | 22.38 |
| | October | 22.58 | 22.56 | 22.43 | 22.24 |
| Medium | July (2 wks) | 20.14 | 20.01 | 20.31 | 19.93 |
| | August | 20.61 | 20.76 | 21.10 | 20.73 |
| | September | 20.90 | 21.20 | 20.41 | 20.22 |
| | October | 19.90 | 20.46 | 20.73 | 20.77 |
| Slaughter: | | | | | |
| Standard | July (2 wks) | 21.40 | 20.72 | 21.77 | 20.58 |
| | August | 21.10 | 20.99 | 21.28 | 22.05 |
| | September | 21.41 | 20.17 | 21.86 | 21.64 |
| | October | 20.69 | 20.76 | 21.05 | 21.88 |
| Good | July (2 wks) | 23.34 | 23.35 | 24.34 | 24.11 |
| | August | 23.73 | 24.04 | 24.05 | 24.00 |
| | September | 24.18 | 23.78 | 24.14 | 24.02 |
| | October | 24.03 | 23.93 | 24.06 | 23.94 |
| Utility | July (2 wks) | 17.77 | 18.33 | 18.50 | 17.77 |
| | August | 17.41 | 18.48 | 17.77 | 18.57 |
| | September | 17.91 | 18.01 | 17.98 | 18.86 |
| | October | 17.55 | 17.28 | 17.84 | 17.44 |
| Cull cows: | | | | | |
| Utility | July (2 wks) | 15.77 | 15.96 | 16.24 | 15.40 |
| | August | 15.68 | 16.57 | 16.27 | 16.37 |
| | September | 16.19 | 16.85 | 16.40 | 16.70 |
| | October | 16.13 | 16.30 | 16.21 | 16.28 |
| Cutter | July (2 wks) | 13.59 | 12.85 | 13.28 | 13.55 |
| | August | 14.31 | 14.20 | 14.41 | 13.08 |
| | September | 14.65 | 15.46 | 14.49 | 14.75 |
| | October | 14.23 | 14.55 | 14.33 | 14.44 |

Continued

Table 14. continued

| Group and grade | Month | Richfield | Smithfield | Utah Valley | Delta |
|-----------------|--------------|-----------|------------|-------------|-------|
| Canner | July (2 wks) | 11.56 | 11.33 | -- | 11.80 |
| | August | 13.14 | 12.73 | 13.20 | 12.46 |
| | September | 12.74 | 13.15 | 13.31 | 12.76 |
| | October | 12.86 | 12.83 | 12.69 | 11.73 |

September between Richfield and Utah Valley for choice feeders.

Richfield was \$23.09 per hundred pounds and Utah Valley was \$26.02.

A price difference of \$2.07 appears in July between Smithfield and Utah Valley for good feeders. Smithfield was \$22.02 per hundred pounds, and Utah Valley was \$24.09. These are the only two price differentials in table 14 that are anywhere near the differential required for profit making.

A comparison between price and weight of feeder steers and heifers in tables 15 and 16 reveals that most of the time as weight increases prices go down, and conversely as weight goes down prices go up. This relationship is consistent among all auctions observed.

A price difference of \$1.93 per hundred pounds appears between Smithfield and Utah Valley in July for choice feeder steers. Smithfield was \$23.91 per hundred pounds for 494 pound feeder steers, and Utah Valley was \$25.84 for 478 pound feeder steers (table 15).

A price difference of \$2.46 per hundred pounds appears between Smithfield and Richfield in July for good feeder steers. Smithfield was \$22.14 for 547 pound cattle and Richfield was \$24.60 for 417

Table 15. Comparison between price and weight of feeder steers in dollars per hundred pounds for Utah livestock auctions, 1962

| Month | Grade | <u>Richfield</u> | | <u>Smithfield</u> | | <u>Utah Valley</u> | | <u>Delta</u> | |
|------------|--------|------------------|--------|-------------------|--------|--------------------|--------|--------------|--------|
| | | price | weight | price | weight | price | weight | price | weight |
| July | | | | | | | | | |
| (2 wks): | Choice | 24.93 | 414 | 23.91 | 494 | 25.84 | 478 | 25.94 | 460 |
| | Good | 24.60 | 417 | 22.14 | 547 | 23.46 | 455 | 23.00 | 460 |
| | Medium | 20.70 | 515 | 20.69 | 540 | 21.82 | 539 | 20.65 | 584 |
| August: | | | | | | | | | |
| | Choice | 24.20 | 499 | 25.06 | 528 | 25.43 | 521 | 25.30 | 521 |
| | Good | 22.60 | 515 | 22.94 | 517 | 23.40 | 420 | 22.34 | 585 |
| | Medium | 20.98 | 508 | 22.00 | 467 | 21.70 | 534 | 20.49 | 617 |
| September: | | | | | | | | | |
| | Choice | 24.72 | 499 | 26.00 | 458 | 25.61 | 450 | 24.89 | 560 |
| | Good | 23.17 | 492 | 23.21 | 475 | 23.17 | 502 | 22.57 | 585 |
| | Medium | 21.04 | 492 | 21.13 | 523 | 20.62 | 508 | 20.53 | 624 |
| October: | | | | | | | | | |
| | Choice | 25.59 | 506 | 27.00 | 427 | 26.75 | 467 | 26.44 | 508 |
| | Good | 22.76 | 482 | 23.15 | 522 | 22.92 | 541 | 22.81 | 594 |
| | Medium | 20.46 | 566 | 20.61 | 577 | 20.45 | 571 | 20.92 | 629 |

pound cattle (table 15). These are the two greatest price differences in the table and bear out the price weight relationship described above.

Table 16. Comparison between price and weight of feeder heifers in dollars per hundred pounds for Utah livestock auctions, 1962

| Grade | Richfield | | Smithfield | | Utah Valley | | Delta | |
|-----------------|-----------|--------|------------|--------|-------------|--------|-------|--------|
| | price | weight | price | weight | price | weight | price | weight |
| July | | | | | | | | |
| (2 wks): Choice | 23.12 | 500 | 22.75 | 500 | 23.13 | 470 | 23.65 | 454 |
| Good | 23.72 | 551 | 23.25 | 300 | 23.53 | 534 | 22.77 | 493 |
| Medium | 18.69 | 482 | 19.84 | 526 | 19.25 | 500 | 19.63 | 653 |
| August: | | | | | | | | |
| Choice | 24.32 | 434 | 25.30 | 406 | 25.11 | 451 | 24.36 | 496 |
| Good | 21.70 | 517 | 22.24 | 498 | 22.90 | 491 | 22.80 | 469 |
| Medium | 19.72 | 470 | 20.01 | 459 | 19.03 | 488 | 19.82 | 482 |
| September: | | | | | | | | |
| Choice | 23.12 | 452 | 25.29 | 406 | 24.92 | 396 | 23.90 | 507 |
| Good | 22.20 | 503 | 22.44 | 482 | 21.96 | 476 | 21.89 | 529 |
| Medium | 21.38 | 467 | 20.13 | 400 | 19.53 | 510 | 19.79 | 517 |
| October: | | | | | | | | |
| Choice | 24.92 | 436 | 26.73 | 407 | 25.31 | 436 | 25.28 | 479 |
| Good | 22.11 | 477 | 21.76 | 486 | 22.00 | 511 | 22.23 | 560 |
| Medium | 19.42 | 522 | 19.26 | 473 | 21.06 | 448 | 20.67 | 529 |

For feeder heifers the highest price difference is found between Richfield and Smithfield in September at \$2.17 per hundred pounds for choice grade. Richfield was \$23.12 per hundred pounds for 452 pound heifers, and Smithfield \$25.29 at 406 pounds (table 16). These are the only differentials appearing in the table that approach the minimum for profit making opportunities.

The above price differentials are due to the difference in weight and do not necessarily mean that the price differences among auctions are as large as they appear. When cattle of the same weight and grade are compared the price difference is considerably less than described above.

To be sure that all avenues of this problem are explored, a further analysis was made in tables 17 through 20. This observation was concerned with comparing different weights in the same grade for feeder steers and heifers. The data lends itself to three weights for each grade i.e., 350 to 450, 451 to 550, and over 550. This analysis again points out that a higher price is received for lower weights. As the weight goes up, prices fall. However, this relationship is consistent for all auctions concerned, and for the same grade and weight very little difference in price is noted.

Table 17. Comparison of price and weight to grade for feeder steers and heifers at the Richfield livestock auction in dollars per hundred pounds, 1962

| Grade and weight | Choice | | | Good | | | Medium | | |
|------------------------|--------|-----|------|------|-----|------|--------|-----|------|
| | 350 | 451 | over | 350 | 451 | over | 350 | 451 | over |
| | 450 | 550 | 550 | 450 | 550 | 550 | 450 | 550 | 550 |

Feeder steers

Price 25.56 24.67 23.50 24.50 22.61 22.10 22.10 21.34 20.39

Feeder heifers

Price 23.12 22.23 20.56 23.15 22.15 20.56 20.29 20.55 18.26

Table 18. Comparison of price and weight to grade for feeder steers and heifers at the Smithfield livestock auction in dollars per hundred pounds, 1962

| Grade and weight | Choice | | | Good | | | Medium | | |
|------------------------|--------|-----|------|------|-----|------|--------|-----|------|
| | 350 | 451 | over | 350 | 451 | over | 350 | 451 | over |
| | 450 | 550 | 550 | 450 | 550 | 550 | 450 | 550 | 550 |

Feeder steers

Price 26.26 25.71 24.19 24.73 23.10 22.26 21.76 21.36 20.52

Feeder heifers

Price 26.13 24.51 xx 22.38 22.23 21.31 20.09 19.52 17.93

Table 19. Comparison of price and weight to grade for feeder steers and heifers at the Utah Valley livestock auction in dollars per hundred pounds, 1962

| Grade and weight | Choice | | | Good | | | Medium | | |
|------------------|------------|------------|-------------|------------|------------|-------------|------------|------------|-------------|
| | 350 450 | 451 550 | over 550 | 350 450 | 451 550 | over 550 | 350 450 | 451 550 | over 550 |
| Feeder steers | | | | | | | | | |
| Price | 27.07 | 25.50 | 24.40 | 23.18 | 22.98 | 23.35 | 21.13 | 21.42 | 20.47 |
| Feeder heifers | | | | | | | | | |
| Price | 25.40 | 24.84 | 23.96 | 23.25 | 22.31 | 21.32 | 20.95 | 20.07 | 17.94 |

Table 20. Comparison of price and weight to grade for feeder steers and heifers at the Delta livestock auction in dollars per hundred pounds, 1962

| Grade and weight | Choice | | | Good | | | Medium | | |
|------------------|------------|------------|-------------|------------|------------|-------------|------------|------------|-------------|
| | 350 450 | 451 550 | over 550 | 350 450 | 451 550 | over 550 | 350 450 | 451 550 | over 550 |
| Feeder steers | | | | | | | | | |
| Price | 26.90 | 25.33 | 24.68 | 23.20 | 23.48 | 22.52 | 21.92 | 20.73 | 20.24 |
| Feeder heifers | | | | | | | | | |
| Price | 25.21 | 24.31 | 23.54 | 23.04 | 21.99 | 21.26 | 22.30 | 20.30 | 19.75 |

VARIANCE OF DATA

In order to determine how much the prices varied, a standard deviation was calculated for choice and good feeders at the Delta auction 1962 study. This auction was chosen because it contained the best representative sample of livestock prices for the above grades.

The calculation revealed that for choice feeders the variance was \$1.89 and standard deviation was \$1.37. For good feeders the variance was \$1.18 and standard deviation was \$1.09.¹

As the above data stands, they have little meaning. They become meaningful when the magnitude of the mean price is considered. For choice feeders the mean is \$24.97 with a standard deviation of \$1.37, and 62 degrees of freedom.² Good feeder mean price is \$22.37 with a standard deviation of \$1.09 and 69 degrees of freedom. As the standard deviation is considered concurrently with the mean prices, the indication is that the price had relatively little variation throughout the period of study.

¹In a normal or bell shaped distribution the mean deviation is .79790. In a moderately skewed distribution this relationship is approximately true. If a distance equal to one standard deviation is measured off on the X axis on both sides of the arithmetic mean in a normal distribution, 68.26% of the values will be included within above limits. If two standard deviations are measured off 95.46% of items are included. Three standard deviations measured off will include 99.73% of population.

²The degrees of freedom are the number of observations which are free to vary after certain restrictions are imposed. In testing the reliability of an arithmetic mean, the degrees of freedom are one less than the number of observations.

PRICE DIFFERENTIAL SEPTEMBER-DECEMBER 1963

The data for 1963 were gathered in the same manner as the first study. An enumerator visited five of the thirteen auctions in the state each week for fifteen weeks, September through December, 1963. Weight and grade was estimated as the cattle entered the ring, and the price was recorded as the sale was made.

The auctions selected were Richfield, Smithfield, Utah Valley, Delta, and Ogden.¹

Average Price Differential Among Auctions

The cattle were again classified into three groups: feeders, slaughter cattle, and cull cows with three grades used with each group.² The grades of feeder cattle where enough sales were made to analyze were choice, good, and medium. Prices are quoted on a dollars per hundred pound basis.

To insure uniformity in data, Richfield was again used as base. Choice feeder cattle at Ogden were highest at \$.75 above base followed by Smithfield at \$.43, Utah Valley \$.22, and Delta with \$.09 above base (table 21).

For good feeders, Ogden averaged \$.41 higher than base auction

¹Ogden was added to the group in the second study to more accurately study the relationship of prices among auctions.

²See footnote 1, page 17.

Table 21. Difference in price of choice feeder cattle with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1963

| Week beginning | | Smithfield | Utah Valley | Delta | Ogden |
|----------------|----|------------|-------------|-------|-------|
| September | 9 | - .06 | 1.07 | .32 | .16 |
| | 16 | - .51 | -1.37 | -1.17 | - .73 |
| | 23 | 1.46 | 1.17 | .13 | .23 |
| | 30 | -2.28 | - .35 | -1.69 | .34 |
| October | 7 | .41 | - .01 | 1.51 | .13 |
| | 14 | 2.97 | 2.02 | 1.76 | .57 |
| | 21 | 1.28 | .48 | -1.47 | .64 |
| | 28 | .21 | -1.37 | .05 | 2.43✓ |
| November | 4 | xx | 1.27 | .17 | 1.53 |
| | 11 | .66 | - .62 | .14 | 3.02✓ |
| | 18 | - .27 | 1.01 | .17 | - .06 |
| | 25 | xx | xx | .17 | .66 |
| December | 2 | -1.16 | - .76 | - .54 | .35 |
| | 9 | 2.43 | .81 | 1.94 | 1.78 |
| | 16 | xx | - .20 | - .18 | .24 |
| Total | | 5.14 | 3.15 | 1.31 | 11.29 |
| Average | | .43 | .22 | .09 | .75 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, Delta, and Ogden.

with Delta, Utah Valley and Smithfield \$.13, \$.36, and \$.47 respectively below base (table 22).

All auctions were below the base auction for medium feeders with Smithfield lowest at \$.59, Delta \$.40, Utah Valley \$.32 and Ogden \$.13 (table 23).

Table 22. Difference in price of good feeder cattle with Richfield as base^a in dollars per hundred pounds for Utah livestock auctions^a, 1963

| Week beginning | | Smithfield | Utah Valley | Delta | Ogden |
|----------------|----|------------|-------------|-------|--------|
| September | 9 | 1.50 | - .39 | -1.02 | -1.60 |
| | 16 | - .23 | -1.16 | - .89 | .28 |
| | 23 | -1.37 | - .34 | .80 | -1.03 |
| | 30 | - .02 | .40 | .86 | .99 |
| October | 7 | - .94 | -2.28 | .59 | - .91 |
| | 14 | - .24 | 1.22 | 1.03 | 1.55 |
| | 21 | .32 | .95 | .42 | .19 |
| | 28 | - .42 | -1.26 | - .73 | .65 |
| November | 4 | -1.02 | .23 | .04 | 1.53 ✓ |
| | 11 | .57 | -1.05 | - .04 | 1.82 |
| | 18 | - .04 | -1.94 | -2.13 | - .09 |
| | 25 | xx | xx | -1.58 | 1.65 |
| December | 2 | -1.86 | -1.16 | - .45 | .05 |
| | 9 | .29 | - .29 | - .42 | - .20 |
| | 16 | -1.64 | .50 | 1.57 | 1.29 ✓ |
| Total | | -5.10 | -6.57 | -1.95 | 6.17 |
| Average | | - .36 | - .47 | - .13 | .41 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, Delta, and Ogden.

Table 23. Difference in price of medium feeder cattle with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1963

| Week beginning | | Smithfield | Utah Valley | Delta | Ogden |
|----------------|----|------------|-------------|-------|-------|
| September | 9 | - .62 | - .02 | -1.10 | .75 |
| | 16 | - .53 | .32 | - .25 | .35 |
| | 23 | - .63 | .27 | - .04 | 0.00 |
| | 30 | .61 | .28 | .65 | .14 |
| October | 7 | 1.54 | .29 | .34 | 1.04 |
| | 14 | - .26 | - .25 | - .12 | - .31 |
| | 21 | - .34 | .24 | .25 | - .31 |
| | 28 | -1.70 | - .47 | - .15 | - .52 |
| November | 4 | -1.66 | 1.41 | - .51 | - .88 |
| | 11 | - .54 | .28 | - .15 | - .11 |
| | 18 | - .70 | - .98 | -1.62 | - .81 |
| | 25 | xx | xx | -1.09 | -1.71 |
| December | 2 | -2.01 | - .72 | - .62 | - .34 |
| | 9 | - .53 | -3.11 | - .71 | - .68 |
| | 16 | - .84 | .87 | - .85 | 1.50 |
| Total | | -8.21 | -4.41 | -5.97 | -1.89 |
| Average | | - .59 | - .32 | - .40 | - .13 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, Delta, and Ogden.

The grades for slaughter cattle sold were choice, good, and standard. There were not enough utility slaughter cattle to analyze.

Choice slaughter cattle were highest at Ogden being \$.74 above Richfield followed by Delta \$.18 and Utah Valley \$.07. There were no choice slaughter animals sold through the Smithfield auction during the fifteen week period (table 24).

Ogden was again the highest market for good slaughter cattle

Table 24. Difference in price of choice slaughter cattle with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1963

| Week beginning | | Smithfield | Utah Valley | Delta | Ogden |
|----------------|----|------------|-------------|-------|-------|
| September | 9 | xx | -1.23 | .44 | 3.10 |
| | 16 | xx | 1.87 | .37 | xx |
| | 23 | xx | .72 | .44 | -.85 |
| | 30 | xx | .15 | .35 | 1.39 |
| October | 7 | xx | -1.16 | xx | -.19 |
| | 14 | xx | xx | -.69 | .26 |
| | 21 | xx | xx | xx | xx |
| | 28 | xx | xx | xx | xx |
| November | 4 | xx | xx | xx | xx |
| | 11 | xx | xx | xx | xx |
| | 18 | xx | xx | xx | xx |
| | 25 | xx | xx | xx | xx |
| December | 2 | xx | xx | xx | xx |
| | 9 | xx | xx | xx | xx |
| | 16 | xx | xx | xx | xx |
| Total | | xx | .35 | .91 | 3.71 |
| Average | | xx | .07 | .18 | .74 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, Delta, and Ogden.

averaging \$.52 above the base auction. Good slaughter cattle were \$.06 higher than Richfield at Utah Valley. Smithfield and Delta dropped below the base auction for good slaughter cattle averaging \$.37 and \$.01 respectively (table 25).

The Delta market was \$.60 higher than Richfield for standard grade cattle. Ogden followed with \$.53 above base. Smithfield and Utah Valley were both below Richfield for standard grade cattle averaging

Table 25. Difference in price of good slaughter cattle with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1963

| Week beginning | | Smithfield | Utah Valley | Delta | Ogden |
|----------------|----|------------|-------------|-------|-------|
| September | 9 | xx | .41 | .15 | - .73 |
| | 16 | - .20 | .07 | .76 | - .47 |
| | 23 | xx | 1.09 | -1.40 | - .73 |
| | 30 | - .80 | - .82 | .40 | 2.93 |
| October | 7 | xx | xx | xx | xx |
| | 14 | - .10 | .59 | - .35 | .60 |
| | 21 | xx | .53 | .33 | xx |
| | 28 | xx | -1.46 | .02 | 1.19 |
| November | 4 | xx | xx | xx | xx |
| | 11 | xx | xx | xx | .83 |
| | 18 | xx | xx | xx | xx |
| | 25 | xx | xx | xx | xx |
| December | 2 | xx | xx | xx | xx |
| | 9 | xx | xx | xx | xx |
| | 16 | xx | xx | xx | xx |
| Total | | -1.10 | .41 | - .09 | 3.62 |
| Average | | - .37 | .06 | - .01 | .52 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, Delta, and Ogden.

\$.09 and \$.04 respectively (table 26).

Cull cows were graded as utility, cutter and canner. Ogden was highest above base for utility cows averaging \$.43. Utility cows at Utah Valley and Smithfield were next at \$.23 and \$.07 above the base auction. Utility cows at Delta dropped \$.03 below Richfield (table 27).

Ogden remained high for cutter grade cattle at \$.43 above base.

Table 26. Difference in price of standard slaughter cattle with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1963

| Week beginning | | Smithfield | Utah Valley | Delta | Ogden |
|----------------|----|------------|-------------|-------|-------|
| September | 9 | 1.05 | 1.21 | .88 | -1.37 |
| | 16 | -.28 | .29 | 1.72 | .78 |
| | 23 | -.21 | -1.94 | .24 | .77 |
| | 30 | .47 | .16 | 1.68 | 2.63 |
| October | 7 | .78 | .73 | .62 | 1.41 |
| | 14 | .22 | 1.09 | 2.35 | .93 |
| | 21 | -1.86 | 1.66 | .88 | .02 |
| | 28 | -.90 | -.78 | -1.05 | -.10 |
| November | 4 | 1.30 | -2.00 | xx | 2.15 |
| | 11 | xx | xx | xx | xx |
| | 18 | xx | xx | -.10 | .39 |
| | 25 | xx | xx | -1.00 | -1.10 |
| December | 2 | xx | xx | xx | xx |
| | 9 | -1.44 | -.79 | xx | -.19 |
| | 16 | xx | .33 | .41 | xx |
| Total | | -.87 | -.04 | 6.63 | 6.32 |
| Average | | -.09 | -.04 | .60 | .53 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, Delta, and Ogden.

Table 27. Difference in price of utility grade cows with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1963

| Week beginning | | Smithfield | Utah Valley | Delta | Ogden |
|----------------|----|------------|-------------|-------|-------|
| September | 9 | .29 | .22 | - .22 | .14 |
| | 16 | - .24 | .25 | - .29 | .50 |
| | 23 | .19 | .76 | .10 | .36 |
| | 30 | .28 | .14 | xx | .28 |
| October | 7 | .25 | - .05 | 0.00 | .24 |
| | 14 | xx | xx | xx | xx |
| | 21 | - .70 | .06 | - .07 | .30 |
| | 28 | - .16 | .32 | - .04 | .66 |
| November | 4 | - .23 | - .40 | - .21 | .18 |
| | 11 | xx | xx | xx | xx |
| | 18 | xx | xx | xx | xx |
| | 25 | xx | xx | .12 | .45 |
| December | 2 | - .42 | .16 | - .52 | - .36 |
| | 9 | 1.12 | .98 | .93 | 1.61 |
| | 16 | .37 | .13 | - .08 | .84 |
| Total | | .75 | 2.57 | - .28 | 5.20 |
| Average | | .07 | .23 | - .03 | .43 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, Delta, and Ogden.

Cutters at Smithfield, Utah Valley, and Delta fell below Richfield averaging \$.19, \$.14, and \$.04 respectively (table 28).

Canners sold best at Ogden \$.55 higher than the base auction. Canners at Smithfield and Utah Valley were also above Richfield averaging \$.10 and \$.06. Delta was \$.05 below the base auction for canner cows (table 29).

In comparing the average price differentials among auctions for

Table 28. Difference in price of cutter grade cows with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1963

| Week beginning | | Smithfield | Utah Valley | Delta | Ogden |
|----------------|----|------------|-------------|-------|-------|
| September | 9 | .06 | - .35 | - .20 | .28 |
| | 16 | .54 | .28 | .67 | 1.31 |
| | 23 | .05 | .74 | .92 | .45 |
| | 30 | - .04 | -1.13 | - .03 | - .15 |
| October | 7 | - .14 | - .03 | .18 | .30 |
| | 14 | - .74 | .12 | .30 | .39 |
| | 21 | .23 | .18 | .15 | .29 |
| | 28 | - .34 | .18 | .12 | .26 |
| November | 4 | .10 | .34 | .43 | .77 |
| | 11 | - .14 | - .76 | - .42 | .81 |
| | 18 | - .67 | - .91 | - .68 | .25 |
| | 25 | xx | xx | - .85 | .20 |
| December | 2 | .08 | .28 | - .06 | .63 |
| | 9 | -1.06 | - .81 | - .83 | .39 |
| | 16 | - .55 | - .12 | - .31 | .26 |
| Total | | -2.62 | -1.99 | - .61 | 6.44 |
| Average | | - .19 | - .14 | - .04 | .43 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, Delta, and Ogden.

Table 29. Difference in price of canner grade cows with Richfield as base in dollars per hundred pounds for Utah livestock auctions^a, 1963

| Week beginning | | Smithfield | Utah Valley | Delta | Ogden |
|----------------|----|------------|-------------|-------|-------|
| September | 9 | .15 | -1.01 | .72 | .11 |
| | 16 | -.21 | -.59 | -.54 | -.32 |
| | 23 | -.77 | -.26 | -1.24 | .18 |
| | 30 | -.45 | -.24 | -.58 | -.49 |
| October | 7 | -.41 | .74 | -.74 | -.08 |
| | 14 | 1.19 | 1.14 | .10 | .81 |
| | 21 | 1.42 | .71 | .97 | 1.42 |
| | 28 | -.36 | .18 | .18 | .27 |
| November | 4 | -1.07 | -.29 | -2.01 | .41 |
| | 11 | -1.53 | -.38 | -.74 | .56 |
| | 18 | .23 | -.10 | -.06 | .38 |
| | 25 | xx | xx | -.53 | -.20 |
| December | 2 | 2.07 | .37 | 2.53 | 2.63 |
| | 9 | 1.40 | -.47 | .65 | 1.18 |
| | 16 | -.19 | 1.02 | .60 | 1.40 |
| Total | | 1.38 | .82 | -.69 | 8.26 |
| Average | | .10 | .06 | -.05 | .55 |

^aThe auctions are: Richfield, Smithfield, Utah Valley, Delta, and Ogden.

1962 no auction is consistently high or low, although the range of prices is split between the Smithfield and Delta auctions.

In 1963 the Ogden auction was consistently high and the Smithfield auction was consistently low.

The 1962 data shows that for feeder cattle, Smithfield was high at \$1.10 per hundred pounds above Richfield the base auction (table 1),

and Delta was low at \$.02 above base (table 3).

Slaughter cattle were high at Delta, selling for \$.54 above base (table 5), and slaughter cattle at Smithfield were low at \$.54 per hundred pounds below the base auction (table 5).

The Smithfield auction was high for cull cows at \$.56 above base (table 7), and Delta was the low auction at \$.63 below Richfield the base auction (table 9).

In 1963 the Ogden auction was high for feeder cattle at \$.75 above Richfield (table 21), and Smithfield was low for feeder cattle at \$.59 below the base auction (table 23).

Slaughter cattle sold highest at Ogden for \$.74 above the base auction (table 24), and lowest at Smithfield for \$.37 per hundred pounds below base (table 25).

The Ogden auction was again high for cull cows at \$.55 above base (table 29), and Smithfield was the low auction at \$.19 per hundred pounds below Richfield (table 28).

Comparison of Prices Among Grades at
the Same Auction

In Richfield with medium feeders as base, choice feeders averaged \$5.03 and good feeders \$2.88 above base. Choice slaughter cattle were \$4.40 above standard grade, good slaughter cattle were \$2.54 above standard grade. Utility grade cows were \$3.22, and cutters \$2.28 higher than canners (table 30).

Table 30. Comparison of price among grades at the Richfield auction in dollars per hundred pounds, with medium, standard, and canner grades as base for feeder, slaughter cattle, and cull cows respectively, 1963

| Dollars per hundred pounds above base grade | | | | | | | |
|---|----|---------|-------|------------------|-------|-----------|--------|
| | | Feeders | | Slaughter cattle | | Cull cows | |
| Week | | Choice | Good | Choice | Good | Utility | Cutter |
| September | 9 | 3.83 | 2.35 | 4.08 | 2.73 | 2.69 | 2.15 |
| | 16 | 6.63 | 2.84 | 4.15 | 2.43 | 2.66 | 1.36 |
| | 23 | 4.49 | 2.34 | 3.45 | 2.94 | 2.08 | .88 |
| | 30 | 6.79 | 3.20 | 4.46 | 3.02 | 2.18 | 1.50 |
| October | 7 | 5.96 | 4.76 | 5.70 | xx | 3.08 | 1.90 |
| | 14 | 3.97 | 2.03 | 4.57 | 2.32 | xx | 2.35 |
| | 21 | 5.00 | 2.33 | xx | 2.65 | 3.72 | 2.52 |
| | 28 | 5.10 | 2.82 | xx | 1.68 | 2.78 | 1.90 |
| November | 4 | 4.31 | 2.17 | xx | xx | 3.22 | 1.41 |
| | 11 | 6.08 | 2.84 | xx | xx | xx | 1.85 |
| | 18 | 4.85 | 2.80 | xx | xx | xx | 3.33 |
| | 25 | 4.28 | 3.07 | xx | xx | 3.40 | 2.80 |
| December | 2 | 5.65 | 2.76 | xx | xx | 5.75 | 3.75 |
| | 9 | 2.74 | 3.03 | xx | xx | 3.31 | 3.54 |
| | 16 | 5.73 | 2.81 | xx | xx | 3.79 | 2.94 |
| Total | | 75.41 | 43.15 | 26.41 | 17.77 | 38.66 | 34.18 |
| Average | | 5.04 | 2.88 | 4.40 | 2.54 | 3.22 | 2.28 |

At Smithfield choice feeders averaged \$5.85 and good feeders \$3.03 higher than medium feeders. There were no choice slaughter cattle sold at Smithfield during this study. Good slaughter cattle were \$3.06 above standard grade. Utility and cutter cows were \$3.20 and \$1.94 higher than canners respectively (table 31).

Table 31. Comparison of price among grades at the Smithfield auction in dollars per hundred pounds, with medium, standard, and canner grades as base for feeder, slaughter cattle, and cull cows respectively, 1963

| Cull cows respectively, 1902 | | | | | | | |
|---|----|---------|-------|------------------|------|-----------|--------|
| Dollars per hundred pounds above base grade | | | | | | | |
| Week | | Feeders | | Slaughter cattle | | Cull cows | |
| | | Choice | Good | Choice | Good | Utility | Cutter |
| September | 9 | 4.39 | 4.47 | xx | xx | 2.83 | 1.94 |
| | 16 | 6.65 | 3.14 | xx | 2.51 | 2.63 | 2.11 |
| | 23 | 6.07 | 1.60 | xx | xx | 3.04 | 1.70 |
| | 30 | 3.90 | 2.57 | xx | xx | 2.91 | 1.91 |
| October | 7 | 4.83 | 2.28 | xx | xx | 3.74 | 2.17 |
| | 14 | 6.79 | 2.05 | xx | xx | 2.51 | .42 |
| | 21 | 6.62 | 2.99 | xx | xx | 1.60 | 1.33 |
| | 28 | 6.21 | 3.30 | xx | xx | 2.98 | 1.92 |
| November | 4 | xx | 2.81 | xx | xx | 4.06 | 2.58 |
| | 11 | 7.28 | 3.95 | xx | xx | 4.47 | 3.24 |
| | 18 | 5.28 | 3.46 | xx | xx | 3.43 | 2.43 |
| | 25 | xx | xx | xx | xx | xx | xx |
| December | 2 | 6.50 | 3.91 | xx | 3.62 | 3.26 | 1.76 |
| | 9 | 5.70 | 3.85 | xx | xx | 3.03 | 1.08 |
| | 16 | xx | 2.01 | xx | xx | 4.35 | 2.58 |
| Total | | 70.22 | 42.39 | xx | 6.13 | 44.84 | 27.17 |
| Average | | 5.85 | 3.03 | xx | 3.06 | 3.20 | 1.94 |

Choice feeders at Utah Valley were \$5.59 above medium grade with good feeders averaging \$2.71 higher than medium grade. Choice and good slaughter cattle were \$4.27 and \$2.46 higher than standard grade. Canner cows as base were \$3.20 lower than utility grade and \$2.22 lower than cutters (table 32).

Table 32. Comparison of price among grades at the Utah Valley auction in dollars per hundred pounds with medium, standard, and canner grades as base for feeders, slaughter cattle, and cull cows respectively, 1963

| Dollars per hundred pounds above base grade | | | | | | | |
|---|----|---------|-------|------------------|-------|-----------|--------|
| Week | | Feeders | | Slaughter cattle | | Cull cows | |
| | | Choice | Good | Choice | Good | Utility | Cutter |
| September | 9 | 4.92 | 1.98 | 4.10 | 1.93 | 4.22 | 3.11 |
| | 16 | 4.94 | 1.36 | 4.50 | 2.21 | 3.50 | 2.23 |
| | 23 | 5.39 | 1.73 | 6.11 | 5.97 | 3.10 | 1.88 |
| | 30 | 6.16 | 3.32 | 4.45 | 2.04 | 2.56 | 2.19 |
| October | 7 | 5.66 | 2.19 | 3.81 | 3.22 | 2.29 | 1.13 |
| | 14 | 6.34 | 3.50 | xx | 1.82 | 2.03 | 1.33 |
| | 21 | 5.24 | 3.04 | 2.67 | 1.52 | 3.07 | 1.99 |
| | 28 | 4.20 | 2.03 | xx | 1.00 | 2.28 | 1.90 |
| November | 4 | 6.49 | 3.81 | xx | xx | 3.11 | 2.04 |
| | 11 | 5.18 | 1.51 | xx | xx | 2.28 | 1.47 |
| | 18 | 6.84 | 1.84 | xx | xx | 3.24 | 2.52 |
| | 25 | xx | xx | xx | xx | xx | xx |
| December | 2 | 5.61 | 3.32 | xx | xx | 5.54 | 3.66 |
| | 9 | 6.66 | 5.85 | xx | xx | 4.76 | 3.20 |
| | 16 | 4.66 | 2.44 | xx | xx | 2.90 | 2.50 |
| Total | | 78.29 | 37.92 | 25.64 | 19.71 | 44.88 | 31.15 |
| Average | | 5.59 | 2.71 | 4.27 | 2.46 | 3.20 | 2.22 |

At the Delta auction choice feeders were \$5.51 higher than the medium grade with good feeders averaging \$3.14 higher than the base grade. Choice and good slaughter cattle were \$3.52 and \$2.08 higher than the standard grade. Utility grade cows were \$3.23 higher than canners and cutters were \$2.28 above the canner grade (table 33).

Table 33. Comparison of price among grades at the Delta auction in dollars per hundred pounds with medium, standard, and canner grades as base for feeder, slaughter cattle, and cull cows respectively, 1963

| Week | Dollars per hundred pounds above base grade | | | | | |
|-------------|---|-------|------------------|-------|-----------|--------|
| | Feeders | | Slaughter cattle | | Cull cows | |
| | Choice | Good | Choice | Good | Utility | Cutter |
| September 9 | 5.25 | 2.43 | 3.64 | 2.00 | 1.75 | 1.23 |
| 16 | 5.71 | 2.20 | 2.80 | 1.37 | 2.91 | 2.57 |
| 23 | 4.66 | 3.18 | 3.65 | 1.30 | 3.42 | 3.04 |
| 30 | 4.45 | 3.41 | 3.13 | 1.74 | xx | 2.05 |
| October 7 | 7.13 | 5.01 | xx | 3.12 | 3.82 | 2.82 |
| 14 | 5.85 | 3.18 | 1.53 | xx | xx | 2.55 |
| 21 | 3.28 | 2.50 | 3.75 | 2.10 | 2.68 | 1.70 |
| 28 | 5.30 | 2.24 | 4.62 | 2.75 | 2.56 | 1.84 |
| November 4 | 4.99 | 2.72 | xx | xx | 5.02 | 3.85 |
| 11 | 6.37 | 2.95 | 3.78 | xx | 3.15 | 2.17 |
| 18 | 6.64 | 2.29 | xx | xx | xx | 2.71 |
| 25 | 5.54 | 2.58 | xx | xx | 4.05 | 2.48 |
| December 2 | 5.73 | 3.93 | 4.46 | 1.71 | 2.70 | 1.16 |
| 9 | 5.39 | 3.32 | xx | xx | 3.59 | 2.06 |
| 16 | 6.40 | 5.23 | 3.84 | 2.65 | 3.11 | 2.03 |
| Total | 82.69 | 47.17 | 35.20 | 18.74 | 38.76 | 34.26 |
| Average | 5.51 | 3.14 | 3.52 | 2.08 | 3.23 | 2.28 |

In Ogden choice and good feeders averaged \$5.91 and \$3.19 above the medium grade. Choice slaughter cattle were \$4.61 above standard with good slaughters averaging \$1.88 above the standard grade. Utility and cutter cows were \$3.18 and \$2.27 above the canner grade (table 34).

Table 34. Comparison of price among grades at the Ogden auction in dollars per hundred pounds with medium, standard, and canner grades as base for feeder, slaughter cattle, and cull cows respectively, 1963

| Dollars per hundred pounds above base grade | | | | | | | |
|---|----|---------|-------|------------------|-------|-----------|--------|
| Week | | Feeders | | Slaughter cattle | | Cull cows | |
| | | Choice | Good | Choice | Good | Utility | Cutter |
| September | 9 | 3.24 | 0.00 | 8.55 | - .50 | 2.62 | 2.22 |
| | 16 | 5.55 | 2.77 | xx | 1.18 | 3.48 | 2.99 |
| | 23 | 4.72 | 1.31 | 3.53 | 1.44 | 2.26 | 3.54 |
| | 30 | 6.99 | 4.05 | 3.22 | 3.32 | 2.95 | 1.84 |
| October | 7 | 5.05 | 2.81 | 4.10 | 2.08 | 3.40 | 2.28 |
| | 14 | 4.85 | 3.89 | 3.90 | 1.99 | 2.72 | 1.93 |
| | 21 | 5.95 | 2.83 | xx | xx | 2.60 | 1.39 |
| | 28 | 7.59 | 3.99 | 4.36 | 2.97 | 3.17 | 1.89 |
| November | 4 | 7.44 | 4.58 | 5.98 | 1.98 | 2.99 | 1.77 |
| | 11 | 8.37 | 4.77 | 4.37 | 1.78 | 3.18 | 2.10 |
| | 18 | 6.18 | 3.52 | 4.21 | 1.10 | 4.67 | 3.20 |
| | 25 | 6.65 | 3.13 | 3.85 | 3.35 | 3.99 | 3.14 |
| December | 2 | 6.34 | 4.15 | xx | xx | 2.76 | 1.75 |
| | 9 | 5.20 | 3.51 | xx | xx | 3.74 | 2.17 |
| | 16 | 4.47 | 2.60 | xx | xx | 3.23 | 1.80 |
| Total | | 88.59 | 47.91 | 46.07 | 20.69 | 47.76 | 34.01 |
| Average | | 5.91 | 3.19 | 4.61 | 1.88 | 3.18 | 2.27 |

Comparison of Prices by Month, Between Price and Weight, and
Price and Weight to Grade

The following tables were constructed in the same manner as those for the 1962 data. This was done to insure uniformity of results, and because the data lends itself more readily to this type of analysis.

The significant observation that emerges from the 1963 period is that, if anything, the difference in prices between auctions is even smaller than in 1962. Also, prices in general for all groups and grades are lower for the 1963 period than 1962. However, all prices dropped uniformly and all price differences are still below the minimum required to make a profit by buying at one auction and selling at another (see footnote page 33).

In table 35 a comparison is made of prices among auctions on a monthly basis for all groups and grades of livestock observed during the period of the study. Reading across the table from left to right for any groups or grade, it is readily observed that a very slight difference in price exists among auctions when compared on a monthly basis.

The greatest price difference occurs between Richfield and Ogden in December for canner grade cull cows. Richfield was \$8.67 per hundred pounds and Ogden \$10.40, making a difference of \$1.73.

In most cases, as weight increases price decreases. This relationship between price and weight has appeared in both groups

of data.¹ Although prices have declined for all groups and grades of livestock, no significant difference is apparent as a price to weight relationship for feeder steers and heifers is considered (tables 36 and 37).

A price differential of \$1.20 per hundred pounds is found between Utah Valley and Ogden in October for choice grade. Utah Valley was \$22.43 for 573 pound steers and Ogden was \$23.63 for 529 pound steers (table 36). This differential is considerably below the marketing costs described on page 14 of this study.

For feeder heifers the price difference was still very low with \$1.82 per hundred pounds appearing between Richfield and Ogden in November for choice grade cattle. Richfield was \$20.75 for 527 pound heifers, and Ogden was \$22.57 for 484 pound heifers (table 37).

A price to weight relationship is set forth in tables 38 through 42. The purpose of these tables is to determine how the price per hundred pounds reacts to a rise or fall in weight for the same grade. Most of the cattle sold through the auctions fall into one of the three weight classes i.e., 350 to 450 pounds, 451 to 550 pounds, and over 550 pounds. It may be observed in these tables that generally the lower the weight the higher the price. This observation again substantiates the conclusion reached on page 33.

¹Refer to page 33 for a discussion of the price difference regarding weight and grade.

Table 35. Comparison of monthly prices among auctions for feeder, slaughter cattle, and cull cows in dollars per hundred pounds for Utah livestock auctions, 1963

| Group and grade | Month | Richfield | Smithfield | Utah Valley | Delta | Ogden |
|-------------------|-----------|-----------|------------|-------------|-------|-------|
| Feeders: | | | | | | |
| Choice | September | 23.29 | 22.84 | 23.45 | 22.72 | 23.32 |
| | October | 22.57 | 23.68 | 22.85 | 23.03 | 23.40 |
| | November | 22.52 | 22.43 | 23.13 | 22.68 | 23.92 |
| | December | 21.87 | 22.34 | 21.82 | 22.27 | 22.66 |
| Good | September | 20.57 | 20.54 | 20.19 | 20.50 | 20.23 |
| | October | 20.55 | 20.25 | 20.20 | 20.87 | 20.92 |
| | November | 20.36 | 19.94 | 19.18 | 19.43 | 20.76 |
| | December | 20.36 | 19.29 | 20.04 | 20.59 | 20.74 |
| Medium | September | 17.88 | 17.59 | 18.10 | 17.70 | 18.19 |
| | October | 17.56 | 17.57 | 18.06 | 17.64 | 17.53 |
| | November | 17.72 | 16.53 | 16.79 | 16.80 | 16.76 |
| | December | 17.16 | 16.03 | 16.17 | 16.43 | 17.32 |
| Slaughter: | | | | | | |
| Choice | September | 21.33 | xx | 22.02 | 21.73 | 23.04 |
| | October | 22.10 | xx | 21.42 | 21.69 | 22.31 |
| | November | xx | xx | xx | xx | 22.17 |
| | December | xx | xx | xx | 21.12 | xx |
| Good | September | 20.08 | xx | 20.26 | 20.05 | 20.33 |
| | October | 19.88 | 19.99 | 19.98 | 20.01 | 20.54 |
| | November | 19.15 | xx | xx | xx | 19.62 |
| | December | xx | 21.00 | xx | 19.63 | xx |
| Standard | September | 17.30 | 17.55 | 17.23 | 18.42 | 18.00 |
| | October | 17.41 | 16.97 | 18.09 | 18.11 | 17.98 |
| | November | 16.87 | 16.67 | 16.33 | 17.06 | 17.57 |
| | December | 17.50 | 17.06 | 17.50 | 17.46 | 17.05 |
| Cull cows: | | | | | | |
| Utility | September | 14.98 | 15.11 | 15.32 | 14.79 | 15.30 |
| | October | 15.02 | 14.98 | 14.92 | 14.99 | 15.39 |
| | November | 14.00 | 13.91 | 13.33 | 13.77 | 14.52 |
| | December | 12.95 | 13.31 | 13.37 | 13.06 | 13.65 |
| Cutter | September | 14.05 | 14.17 | 13.94 | 14.39 | 14.52 |
| | October | 13.98 | 13.73 | 14.09 | 14.17 | 14.29 |
| | November | 12.86 | 12.68 | 12.47 | 12.48 | 13.37 |
| | December | 12.08 | 11.57 | 11.86 | 11.68 | 12.31 |

continued

Table 35. continued

| Group and grade | Month | Richfield | Smithfield | Utah Valley | Delta | Ogden |
|-----------------|-----------|-----------|------------|-------------|-------|-------|
| Canner | September | 12.58 | 12.26 | 11.98 | 12.17 | 12.47 |
| | October | 11.81 | 12.27 | 12.50 | 11.94 | 12.42 |
| | November | 10.51 | 9.93 | 10.46 | 9.68 | 10.82 |
| | December | 8.67 | 9.76 | 8.97 | 9.93 | 10.40 |

Table 36. Comparison between price and weight of feeder steers in dollars per hundred pounds for Utah livestock auctions, 1963

| Month and grade | Richfield | | Smithfield | | Utah Valley | | Delta | | Ogden | |
|-----------------|-----------|--------|------------|--------|-------------|--------|-------|--------|-------|--------|
| | price | weight | price | weight | price | weight | price | weight | price | weight |
| September: | | | | | | | | | | |
| Choice | 22.49 | 507 | 22.41 | 526 | 23.11 | 527 | 22.67 | 566 | 22.53 | 562 |
| Good | 19.88 | 569 | 20.16 | 519 | 19.70 | 578 | 20.51 | 583 | 20.28 | 526 |
| Medium | 18.16 | 610 | 17.69 | 615 | 18.27 | 595 | 18.41 | 633 | 18.16 | 597 |
| October: | | | | | | | | | | |
| Choice | 23.07 | 523 | 23.42 | 447 | 22.43 | 573 | 23.38 | 563 | 23.63 | 529 |
| Good | 20.75 | 589 | 20.26 | 578 | 20.39 | 571 | 21.10 | 566 | 20.40 | 638 |
| Medium | 17.84 | 642 | 17.67 | 654 | 17.53 | 641 | 17.64 | 677 | 18.00 | 651 |
| November: | | | | | | | | | | |
| Choice | 22.99 | 508 | 21.89 | 554 | 22.97 | 511 | 22.24 | 559 | 22.87 | 525 |
| Good | 19.53 | 547 | 19.65 | 618 | 19.03 | 619 | 19.25 | 614 | 20.29 | 561 |
| Medium | 17.52 | 622 | 16.92 | 600 | 16.28 | 672 | 16.50 | 678 | 17.07 | 618 |
| December: | | | | | | | | | | |
| Choice | 21.35 | 650 | 20.56 | 745 | 20.75 | 629 | 20.98 | 617 | 21.71 | 627 |
| Good | 19.27 | 625 | 19.29 | 606 | 19.04 | 644 | 19.10 | 640 | 19.78 | 688 |
| Medium | 16.11 | 593 | 16.51 | 650 | 15.86 | 649 | 16.18 | 677 | 16.62 | 680 |

Table 37. Comparison between price and weight of feeder steers in dollars per hundred pounds for Utah livestock auctions, 1963

| Month and grade | Richfield | | Smithfield | | Utah Valley | | Delta | | Ogden | |
|-----------------|-----------|--------|------------|--------|-------------|--------|-------|--------|-------|--------|
| | price | weight | price | weight | price | weight | price | weight | price | weight |
| September: | | | | | | | | | | |
| Choice | 21.50 | 496 | 21.69 | 548 | 22.23 | 512 | 22.20 | 534 | 22.26 | 458 |
| Good | 19.94 | 494 | 19.34 | 581 | 19.78 | 567 | 19.92 | 574 | 19.75 | 570 |
| Medium | 17.30 | 580 | 17.19 | 633 | 17.77 | 592 | 16.94 | 610 | 17.43 | 598 |
| October: | | | | | | | | | | |
| Choice | 21.91 | 560 | 22.98 | 461 | 22.72 | 522 | 21.98 | 548 | 22.26 | 531 |
| Good | 20.23 | 531 | 19.96 | 516 | 20.00 | 583 | 20.14 | 594 | 20.40 | 577 |
| Medium | 16.97 | 612 | 17.45 | 617 | 17.56 | 639 | 17.57 | 644 | 17.19 | 658 |
| November: | | | | | | | | | | |
| Choice | 20.75 | 527 | 21.37 | 520 | 21.87 | 491 | 21.94 | 453 | 22.57 | 484 |
| Good | 19.86 | 425 | 18.91 | 549 | 19.47 | 574 | 18.59 | 590 | 20.15 | 521 |
| Medium | 17.09 | 584 | 16.17 | 558 | 16.78 | 686 | 16.46 | 609 | 16.00 | 601 |
| December: | | | | | | | | | | |
| Choice | 20.51 | 556 | xx | xx | 20.64 | 534 | 21.08 | 492 | 20.62 | 604 |
| Good | 18.34 | 563 | 17.42 | 705 | 18.56 | 556 | 18.34 | 602 | 19.24 | 563 |
| Medium | 16.12 | 597 | 15.61 | 610 | 16.16 | 649 | 15.41 | 620 | 16.46 | 628 |

Table 38. Comparison of price and weight to grade for feeder steers and heifers at Richfield auction in dollars per hundred pounds, 1963

| Grade and weight | Choice | | | Good | | | Medium | | |
|------------------|--------|-------|-------|-------|-------|-------|--------|-------|-------|
| | 350 | 451 | over | 350 | 451 | over | 350 | 451 | over |
| | 450 | 550 | 550 | 450 | 550 | 550 | 450 | 550 | 550 |
| Feeder steers | | | | | | | | | |
| Price | 23.88 | 22.85 | 21.87 | 19.83 | 20.56 | 19.65 | 17.75 | 17.34 | 17.45 |
| Feeder heifers | | | | | | | | | |
| Price | 22.13 | 21.24 | 21.11 | 20.19 | 19.96 | 19.64 | 16.83 | 17.70 | 16.86 |

Table 39. Comparison of price and weight to grade for feeder steers and heifers at the Smithfield auction in dollars per hundred pounds, 1963

| Grade and weight | Choice | | | Good | | | Medium | | |
|------------------------|--------|-------|-------|-------|-------|-------|--------|-------|-------|
| | 350 | 451 | over | 350 | 451 | over | 350 | 451 | over |
| | 450 | 550 | 550 | 450 | 550 | 550 | 450 | 550 | 550 |
| Feeder steers | | | | | | | | | |
| Price | 23.13 | 23.08 | 21.02 | 20.97 | 20.40 | 19.29 | 17.35 | 17.54 | 17.28 |
| Feeder heifers | | | | | | | | | |
| Price | 23.72 | 22.73 | 20.91 | 21.72 | 19.68 | 18.91 | xx | 16.13 | 16.29 |

Table 40. Comparison of price and weight to grade for feeder steers and heifers at the Utah Valley auction in dollars per hundred pounds, 1963

| Grade and weight | Choice | | | Good | | | Medium | | |
|------------------------|--------|-------|-------|-------|-------|-------|--------|-------|-------|
| | 350 | 451 | over | 350 | 451 | over | 350 | 451 | over |
| | 450 | 550 | 550 | 450 | 550 | 550 | 450 | 550 | 550 |
| Feeder steers | | | | | | | | | |
| Price | 23.47 | 23.22 | 21.62 | 21.28 | 20.04 | 19.39 | 18.50 | 17.27 | 17.19 |
| Feeder heifers | | | | | | | | | |
| Price | 23.75 | 22.24 | 21.52 | xx | 19.86 | 19.19 | 18.75 | 17.67 | 16.44 |

Table 41. Comparison of price and weight to grade for feeder steers and heifers at the Delta auction in dollars per hundred pounds, 1963

| Grade and weight | Choice | | | Good | | | Medium | | |
|------------------|------------|------------|-------------|------------|------------|-------------|------------|------------|-------------|
| | 350 450 | 451 550 | over 550 | 350 450 | 451 550 | over 550 | 350 450 | 451 550 | over 550 |
| Feeder steers | | | | | | | | | |
| Price | 22.85 | 23.47 | 21.93 | 21.35 | 20.67 | 19.06 | xx | 16.72 | 17.25 |
| Feeder heifers | | | | | | | | | |
| Price | 23.07 | 21.90 | 22.04 | xx | 20.02 | 18.84 | 18.75 | 17.05 | 16.56 |

Table 42. Comparison of price and weight to grade for feeder steers and heifers at the Ogden auction in dollars per hundred pounds, 1963

| Grade and weight | Choice | | | Good | | | Medium | | |
|------------------|------------|------------|-------------|------------|------------|-------------|------------|------------|-------------|
| | 350 450 | 451 550 | over 550 | 350 450 | 451 550 | over 550 | 350 450 | 451 550 | over 550 |
| Feeder steers | | | | | | | | | |
| Price | 24.80 | 22.99 | 22.02 | 21.27 | 20.93 | 19.70 | 17.38 | 17.51 | 17.50 |
| Feeder heifers | | | | | | | | | |
| Price | 23.21 | 22.14 | 21.23 | 21.79 | 20.09 | 19.71 | xx | 16.71 | 16.69 |

VARIANCE OF DATA

The Ogden auction was chosen for the variance test of the 1963 data because of the large number of livestock sold.

This analysis reveals that for choice feeders the variance was \$2.33 and the standard deviation was \$1.53 per hundred pounds. For good feeders the variance was \$1.99 and the standard deviation \$1.41.

For choice feeders, the mean price is \$22.52 per hundred pounds, with a standard deviation of \$1.53, and 67 degrees of freedom (see footnotes 1 and 2 on page 41). Good feeder mean price is \$20.20 with a standard deviation of \$1.41 and 96 degrees of freedom.

SUMMARY AND CONCLUSIONS

A knowledge of the price differentials among Utah livestock auctions is important to the cattlemen who patronize them. From a casual observation, it would appear that a buyer may be able to purchase livestock at one auction and ship to another for a profit.

In order to determine if this is possible, marketing costs must be considered i.e., transportation, shrinkage, selling commission, feed, and a risk factor to cover both price change and physical injury during transportation. The distances between auctions are about the same i.e., from Smithfield on the north to Richfield is about 300 miles. All auctions concerned with this study lie between these two points. Therefore, it is possible to reach any auction on the same day it is held, as this distance may be driven in approximately seven hours. It is not inferred here that cattle will be shipped from Richfield to Smithfield or vice versa, but that the auctions in this study are between these two points. When all of the above items are synthesized, it is found that marketing costs between auctions for 500 and 1000 pound cattle are \$2.36 and \$2.00 per hundred pounds respectively if sold the same day they arrive at the auction. When they are brought in the night before, the cost is slightly less at \$2.11 per hundred pounds for 500 pound cattle and \$1.76 for 1000 pound cattle. This is because of less shrinkage due to feeding overnight.

That a price differential existed was determined by comparing all auctions to a base auction. Richfield was chosen because it was the lowest in price for the 1962 period. It was again used for the 1963 data to insure uniformity of procedure. This analysis indicated a slight differential among auctions. This differential ranged from a high of \$1.10 above the base auction per hundred pounds at Smithfield for choice feeders (table 1), to \$.63 below base auction at Delta for canner grade cows (table 9). For the 1963 period the difference ranged from a high of \$.75 per hundred pounds above the base auction for choice feeders at Ogden (table 21), to \$.59 below the base auction for medium feeder cattle at Smithfield (table 23). In neither case did the differential equal or exceed the marketing costs described above.

To bring the analysis into sharper focus, comparisons were made between average monthly price differentials, between price and weight, and price and weight to grade. For both years, the greatest differential in the preceeding comparisons was in table 15 at \$2.46. This was between Richfield and Smithfield in July for good feeder steers of the 500 pound class. Considering it costs \$2.36 to market 500 pound cattle, the difference of \$.10 per hundred pounds would hardly be an incentive to transport them 300 miles from Richfield to Smithfield. It would be next to impossible to predict when and where this large a difference would occur again, since it only appears once in both groups of data.

The prices of choice and good feeders at the Delta (1963)

auction, and choice and good feeders at the Ogden (1963) auction, were tested for variance to determine how widely the prices fluctuated about the arithmetic mean. For the 1962 data, choice feeders had a mean price of \$24.97 with a standard deviation of \$1.37 per hundred pounds and 62 degrees of freedom. Good feeders had a mean price of \$22.37 per hundred pounds with a standard deviation of \$1.09 and 69 degrees of freedom. In the 1963 data, choice feeders had a mean price of \$22.52 per hundred pounds, with a standard deviation of \$1.53, and 67 degrees of freedom. Good feeders had a mean price of \$20.20 per hundred pounds with a standard deviation of \$1.41 and 96 degrees of freedom.

The above tests for variance show that in both periods of data very small variance was discovered, indicating that prices on the whole were fairly stable over the two fifteen week periods for both years.

Results of this study show conclusively that for the two fifteen week periods in 1962 and 1963, no consistent price differential appeared in the data that would make inter-auction movement of cattle profitable.

In the 1963 study, the prices were lower in all groups and grades than 1962. But, the important point here is that the drop was uniform and did not result in the appearance of a significant price difference among auctions.

The information gained from this study should be of value to cattle buyers who regularly patronize the auctions. Especially to

those who anticipate a profit from inter-auction movement of livestock.

APPENDIX

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